

# Mental Health Service Use Among Children and Youth in Ontario: Population-Based Trends Over Time

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**Utilisation des services de santé mentale par les enfants et les adolescents de l'Ontario : tendances dans la population au fil du temps**

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## Abstract

**Objective:** Little is known about mental health service use among Canadian children and youth. Our objective was to examine temporal trends in mental health service use across different sectors of the health care system among children and youth living in Ontario.

**Methods:** We conducted a population-based, repeated annual cross-sectional study of mental health service use, including mental health- and addictions-related emergency department (ED) visits, psychiatric hospitalizations, and mental health-related outpatient physician visits using linked health administrative databases. Subjects included Ontario residents between 10 and 24 years of age. We tested temporal trends between 2006 and 2011 using linear regression models.

**Results:** Between 2006 and 2011, the relative increase in rates of mental health-related ED visits and hospitalizations were 32.5% and 53.7%, respectively. The absolute increase in anxiety disorders, the most common reason for ED visits, was 2.2 per 1000 population ( $P < 0.001$ ) while mood and affective disorders, the most common reason for hospitalizations, showed an increase of 0.6 per 1000 population ( $P < 0.01$ ). The overall relative increase in rates of outpatient visits was 15.8%, with the largest absolute increase found among family physician visits (28.7 per 1000 population,  $P = 0.01$ ).

**Conclusions:** Mental health care use for children and youth is increasing over time in all sectors, but appears to be increasing at a greater rate in the acute care sector. Further research is required to understand whether the observed differences reflect difficulty with access to outpatient care.

## Résumé

**Objectif :** Nous en savons peu sur l'utilisation des services de santé mentale par les enfants et les adolescents canadiens. Notre objectif était d'examiner les tendances temporelles de l'utilisation des services de santé mentale dans différents secteurs du système de santé, chez les enfants et les adolescents habitant en Ontario, au Canada.

**Méthodes :** Nous avons mené une étude annuelle répétée transversale, dans la population, de l'utilisation des services de santé mentale, y compris les visites au service d'urgence (SU) liées à la santé mentale et aux dépendances, les hospitalisations psychiatriques, et les visites à un médecin de patients ambulatoires liées à la santé mentale, à l'aide des bases de données

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administratives reliées sur la santé. Les sujets incluait des résidents de l'Ontario âgés de 10 à 24 ans. Nous avons vérifié les tendances temporelles entre 2006 et 2011 au moyen de modèles de régression linéaire.

**Résultats :** Entre 2006 et 2011, l'augmentation relative des taux de visites au SU et des hospitalisations liées à la santé mentale était de 32,5 % et de 53,7 %, respectivement. L'augmentation absolue des troubles anxieux, la raison la plus commune des visites au SU, était de 2,2 par 1000 de population ( $p < 0,001$ ) alors que les troubles de l'humeur et affectifs, la raison la plus commune des hospitalisations, indiquaient une augmentation de 0,6 par 1000 de population ( $p < 0,01$ ). L'augmentation relative globale des taux de visites des patients ambulatoires était de 15,8 %, l'augmentation absolue la plus importante s'observant dans les visites aux médecins de famille (28,7 par 1000 de population,  $p = 0,01$ )

**Conclusions :** L'utilisation des soins de santé mentale par les enfants et les adolescents s'accroît au fil du temps dans tous les secteurs, mais semble augmenter à un rythme plus rapide dans le secteur des soins actifs. Il faut plus de recherche pour comprendre si les différences observées reflètent la difficulté d'accéder aux soins ambulatoires.

## Keywords

mental health, psychiatric services, child, adolescent, emergency department, acute care, outpatient, trends, service utilization

Most mental health conditions have an onset between childhood and early adulthood, highlighting the importance of access and early intervention after first presentation of illness.<sup>1</sup> In Canada and elsewhere, numerous sources have documented significant issues regarding access to mental health care and coordination between community-based and physician services.<sup>2-5</sup> Despite the attention to these issues, only 1 in 6 children and youth receive the mental health services they need,<sup>6,7</sup> resulting in a significant proportion of youth and families relying on acute care resources during crises.<sup>8-11</sup>

US studies have shown that mental health accounts for a significant portion of acute care use among children and youth ages 3 to 20 years.<sup>12</sup> Less is known about the proportion of health care use attributable to mental health care use among children and youth in Canada. The Ontario Ministry of Health and Long-Term Care (MOHLTC) has made significant investments in a provincial strategy focused on improving mental health services, with a particular emphasis on "right care, right time, right place," meaning having access to timely and appropriate services in the community when mental health and addictions issues arise.<sup>13,14</sup> The results of this study reflect a component of the strategy evaluation.<sup>15</sup>

We conducted a population-based study to examine trends in psychiatric emergency department (ED) visits, hospitalizations, and outpatient physician visits among children and youth in Ontario between 2006 and 2011.

## Method

### Study Design and Setting

We conducted a population-based, repeated annual cross-sectional study of health care use among children and youth between the ages of 10 and 24 years living in Ontario between 2006 and 2011, identified from the Ontario Registered Persons Database. Under Canada's universal health coverage, every legal resident in Ontario has a health card. Personal identifiers from health card numbers were encoded

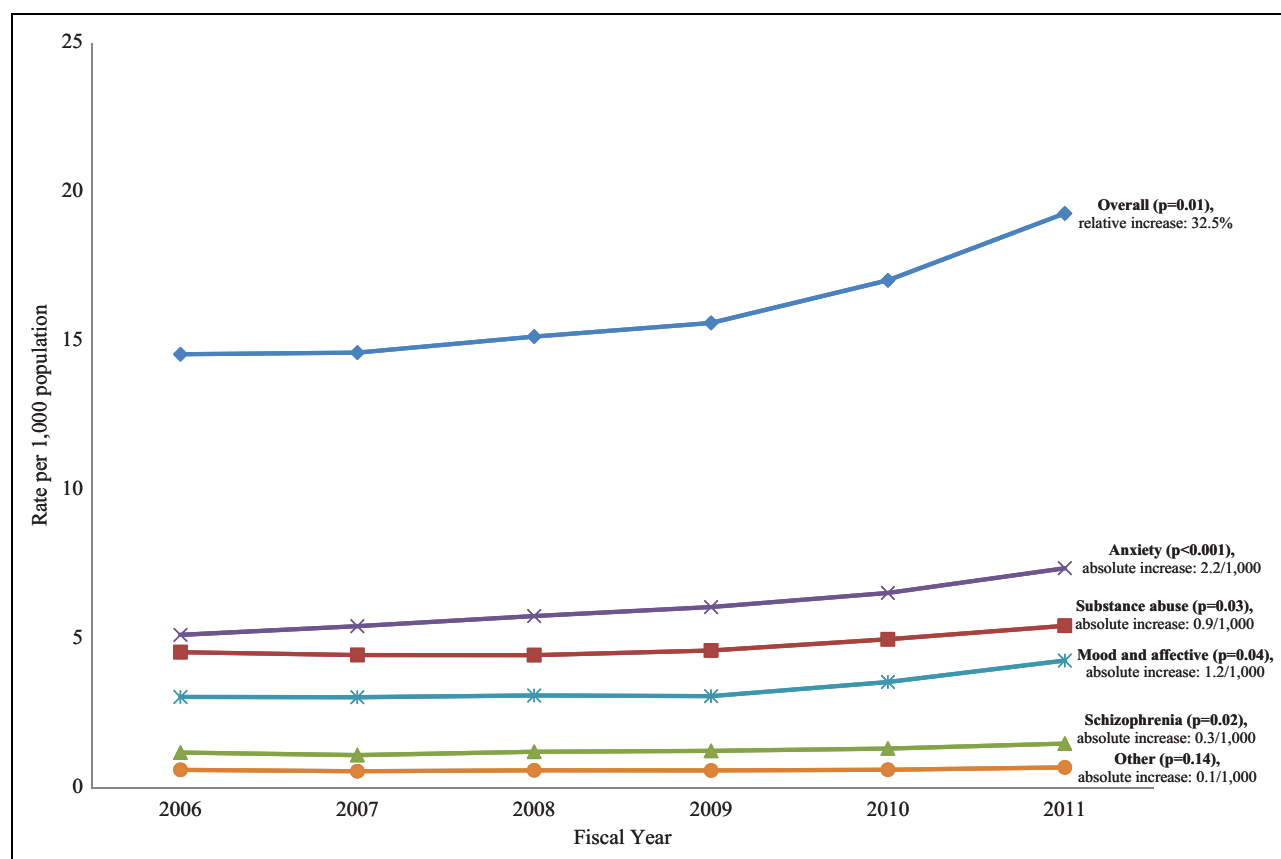
and used to link patient records across different population-based health administrative databases at the Institute for Clinical Evaluative Sciences in Toronto, Ontario. Approval to complete this study was granted by the Sunnybrook Health Science Centre Research Ethics Board.

### Measures

**Psychiatric Emergency Department Use.** Mental health and addictions ED visits were ascertained from the National Ambulatory Care Reporting System using the International Classification of Diseases, 10th Revision, Canada codes recorded in the main problem diagnosis field (online eAppendix A). Visits were further categorized as substance use disorders, schizophrenia, mood and affective disorders, anxiety disorders, and other select childhood disorders.

**Psychiatric Hospitalizations.** Hospitalizations were identified using the most responsible diagnosis field from the Canadian Institute for Health Information (CIHI) Discharge Abstract Database, which includes hospitalization records for patients of all ages. The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision, Axis 1 diagnosis field in the Ontario Mental Health Reporting System, which includes all psychiatric hospitalizations for patients 16 to 24 years of age, was also used.

**Outpatient Psychiatric Care Visits.** We examined the total number of mental health and addictions-related outpatient visits to 3 types of physicians (psychiatrists, pediatricians, and family physicians), who provide mental health services to children and youth in Ontario, using the Ontario Health Insurance Plan (OHIP) database. Physician specialties were identified using the assigned OHIP specialty variable. For family physicians and pediatricians, we identified any outpatient visit claim combined with a mental health diagnostic code to identify mental health-specific visits (online eAppendix B).<sup>16</sup>



**Figure 1.** Age and sex standardized rates of emergency department visits for mental health and addictions, among youth ages 10 to 24 years, in Ontario, from 2006 to 2011.

### Statistical Analysis

To estimate population-based rates of health service use annually between 2006 and 2011, we looked at all outpatient visits, ED visits, and hospitalizations for mental health and addictions among children and youth aged 10 to 24 years, within each fiscal year (April 1 to March 31) as our numerator. Denominators were obtained from census estimates supplied by Statistics Canada. Rates were calculated by dividing the number of visits or hospitalizations by the age-specific population in Ontario, per 1000 persons. Rates were standardized to the age and sex distribution of the 2006 Ontario census population using the direct standardization method.

We examined whether rates of outpatient visits, ED visits, and hospitalizations changed over time, stratified by physician specialty and diagnostic categories. Changes were tested in separate linear regression models, using time as the independent variable.

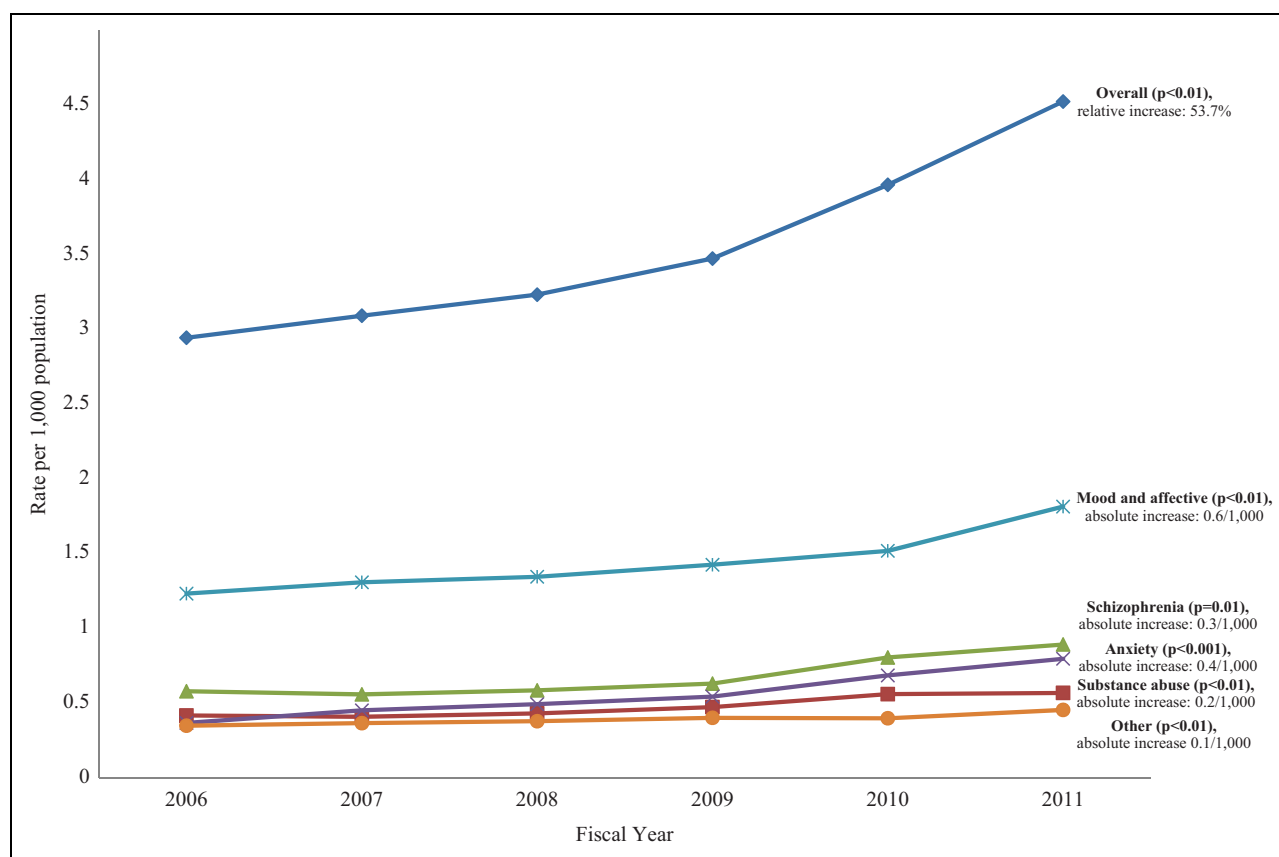
### Results

Overall, the rate of ED visits increased from 14.6 to 19.3 per 1000 population ( $P = 0.01$ ), representing 32.5% relative growth between 2006 and 2011 (Figure 1). Anxiety disorders

were the most common reason for ED visits, and accounted for the largest absolute increase of 2.2 per 1000 population ( $P < 0.001$ ) between 2006 and 2011, while the absolute increase in schizophrenia-related ED visits was 0.3 per 1000 population.

Hospitalizations were rare in our study; however, the relative increase from 2006 and 2011 was 53.7% (2.9 to 4.5 per 1000 population,  $P < 0.01$ ). Mood and affective disorders were the most common reason for hospitalizations (Figure 2). Hospitalization rates for mood and affective disorders showed an upward linear trend over time (1.2 to 1.8 per 1000 population,  $P < 0.01$ ), as did hospitalizations for substance abuse ( $P < 0.01$ ), anxiety disorders ( $P < 0.001$ ), schizophrenia and related disorders ( $P = 0.01$ ), and other select childhood disorders ( $P < 0.01$ ). For all hospitalizations, the absolute increase in rates was minimal.

Office-based physician visits increased 15.8% between 2006 and 2011. Family physicians provided most office-based physician visits, followed by psychiatrists and pediatricians (Figure 3). Between 2006 and 2011, the absolute increase in rates of outpatient visits to family physicians increased by 28.7 per 1000 population ( $P = 0.01$ ). The rise in visits to a pediatrician however, was more stable compared with visits to other providers of care, with an absolute increase of 6.5 per 1000 population.



**Figure 2.** Age and sex standardized rates of hospitalizations for mental health and addictions, among youth ages 10 to 24 years, in Ontario, from 2006 to 2011.

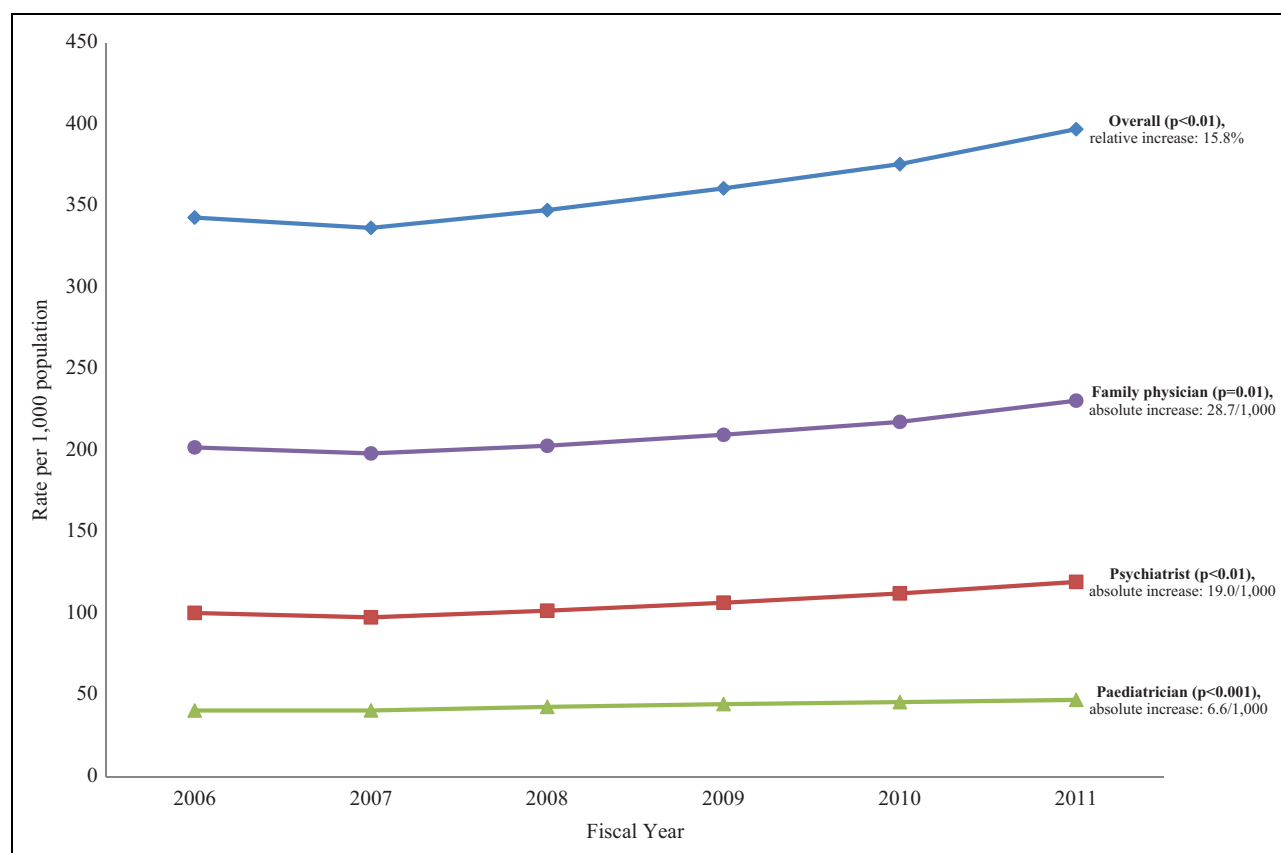
## Discussion

To our knowledge, this is the first population-based study to measure trends in mental illness and addictions health service use among Ontario children and youth. We found significant concurrent increases in ED visits and hospitalizations for most mental health conditions. We also found significant increases in outpatient visit rates, but the increases were double for ED visits and triple hospitalizations relative to outpatient visit rates. Moreover, most of the outpatient increases were accounted for by family physician visit increases. Anxiety-related disorders were consistently the most common reason for ED visits, while mood and affective disorders were the most common reason for hospitalizations.

Our findings are consistent with earlier studies that reported rising trends in access to acute care services among children and youth. A US report by the Health Care Cost Institute<sup>17</sup> found that hospitalizations for mental health and substance abuse among children age 18 years and younger, covered through private health insurance programs, grew 24% (2007 to 2010). Similarly, Pfuntner et al<sup>18</sup> reported an 80% increase in the rate of hospital stays for mood disorders among 1- to 17-year-olds, between 1997 and 2010. Our study is the first to concurrently evaluate acute care (ED and hospitalization visit rates) and outpatient care. The acute care and outpatient results are ecological, and therefore limit inference

on the relation between trends in acute care and outpatient settings. However, the fact that ED visit rates are increasing at a faster rate than outpatient visits suggests that children and youth are accessing services in the ED rather than outpatient resources when they need access to mental health services. This is consistent with related evidence of poor access to nonacute, community-based resources.<sup>2,5,10,12</sup> While we are also unable to measure need for ED services, it is unlikely that the observed increase was solely due to an increase in mental illness and addiction burden or acuity of presentation requiring ED services in Ontario during the study period.

One of the major strengths of our study was our ability to conduct an analysis using population-based data over a 6-year observation period and to monitor mental health service use across multiple health care sectors. We were unable to measure the acuity or severity of patients at the time of ED visits, limiting our interpretation of the appropriateness of the care setting for individual cases. Our study reports population-based trends but does not take into account individual, patterns of historical health service use or follow-up care, or help-seeking behaviours. Finally, our study does not include other community-based mental health services for children and youth, such as those funded by the Ontario Ministry of Children and Youth Services.



**Figure 3.** Age and sex standardized rates of outpatient physician visits for mental health and addictions, among youth ages 10 to 24 years, in Ontario, from 2006 to 2011.

## Conclusion

Mental health care use for children and youth is increasing over time in all sectors, but appears to be increasing at a greater rate in the acute care sector. Future research should examine whether our observed trends reflect challenges with access to outpatient care, a growing burden of mental illness and addictions in the child and youth population, or a rise in the acuity of mental illness and addictions presentations.

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information compiled and provided by CIHI. However, the analyses, conclusions, opinions and statements expressed herein are those of the authors, and not necessarily those of CIHI.

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